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ABSTRACT

This paper discusses the use of the new technologies in noncredit courses for adults who are interested in learning about a particular subject or in developing skills without concern for formal accreditation, whether the course is designed for professional upgrading, loosely related to work, or taken for purely personal satisfaction. Uses of satellite/telephone technology and teleconferencing in noncredit programs through the university system are briefly described to provide background information for the major part of this report, which focuses on two examples of educational programs outside the university system. These two programs are described in detail: (1) the TVOntario Academy, which consists of a combination of television programs, print materials, and computer-managed instruction; and (2) the Adult Basic Education Centre in Toronto, which uses the PLATO system to offer computer-assisted instruction to adults whose reading and arithmetic skills are at the elementary school level. (DB)

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TVOntario

Office of Development Research
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NEW TECHNOLOGIES IN CANADIAN EDUCATION

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PAPER 9

APPLICATIONS OF NEW TECHNOLOGIES IN NONFORMAL ADULT EDUCATION IN CANADA: TWO EXAMPLES

By Donna Sharon

Study Coordinator
Ignacy Waniewicz

January 1984

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NEW TECHNOLOGIES IN CANADIAN EDUCATION

Paper 1	An overview of the educational system in Canada
Paper 2	Communications and information technologies in Canadian elementary and secondary schools
Paper 3	Communications and information technologies in community colleges in Canada
Paper 4	Communications and information technologies in Canadian universities
Paper 5	Communications and information technologies and distance education in Canada
Paper 6	Communications and information technologies and the education of Canada's native peoples
Paper 7	The provincial educational communications organizations in Canada
Paper 8	Educative activities of the Canadian Broadcasting Corporation and the National Film Board of Canada
Paper 9	Applications of new technologies in nonformal adult education in Canada: Two examples
Paper 10	Canadian cable television and education
Paper 11	Educational applications of videotex/Telidon in Canada
Paper 12	Educational applications of communications satellites in Canada
Paper 13	Educational videodisc in Canada
Paper 14	Educational teleconferencing in Canada
Paper 15	Telehealth: Telecommunications technology in health care and health education in Canada
Paper 16	The high technology industry and education in Canada
Paper 17	New technologies in education in Canada: Issues and concerns

Copies of these papers can be purchased from TVOntario, Box 200, Station Q, Toronto, Ontario, Canada M4T 2T1.

FOREWORD

We dedicate this series to its designer and director, Ignacy Waniewicz. His death on February 21, 1984, has left us with a feeling of immeasurable loss.

With uncanny intelligence, instinct, and energy, Ignacy introduced the first educational television programs in his native Poland in 1957 and rose to the position of Director of Educational Broadcasting. During the mid-1960s, he served as a Paris-based program specialist in the educational use of radio and television, working for UNESCO in Chile, Cuba, Ivory Coast, Upper Volta, Mexico, Egypt, Nigeria, Senegal, Ghana, Great Britain, United States, Switzerland, and Israel. Ignacy shared the experience and insight he gained from this work by teaching and writing in Polish, German, Russian, Hebrew, Spanish, French, and English. His achievements are widely recognized in the broadcasting and academic communities on four continents.

As Director of the Office of Development Research at TVOntario, Ignacy explored his farsighted and consuming interests in adult education, media literacy, television as a primary tool for lifelong learning, and most recently, the educational uses of new technologies. His work did much to shape and guide TVOntario's progress over the last 15 years.

It is with love and respect that we dedicate this series to Ignacy Waniewicz. In its enormous scope, its thorough documentation, its emphasis on concrete results, and its concern with educational issues, this series reflects both Ignacy's vision and his intellectual legacy.

Donna Sharon
for the Office of Development Research

Preface to the Series

NEW TECHNOLOGIES IN CANADIAN EDUCATION

These papers in the series "New Technologies in Canadian Education" are the result of an international commitment. In June 1980, the Third Conference of Ministers of Education of Member States of the European Region of UNESCO adopted a recommendation requesting the member states to carry out joint comparative studies on well-defined problems of common interest in education. At a subsequent meeting of the European Region National Commissions for UNESCO, 14 subjects were agreed on for joint studies.

The theme "New Technologies in Education" was selected as study #11. The 17 countries participating in the study are Austria, Belgium, Denmark, Finland, France, Hungary, Italy, the Netherlands, Poland, Spain, Sweden, Ukrainian SSR, USSR, United Kingdom, as well as Canada, Israel, and the U.S.A. who are also members of the UNESCO European Region. At the first meeting of the national coordinators from these countries, held in October , 1982, at the University of South Carolina in Columbia, South Carolina, U.S.A., a plan was adopted for the study. In the first phase of this plan, the individual countries are to report on the ways in which the new technologies are being used in education. (A brief outline of the international design is available on request.)

The Canadian Commission for UNESCO was requested to coordinate, on an international level, the first year of the study. We are grateful to the Canadian Commission for selecting TVOntario, and the Office of Development Research (ODR) to be in charge of this task. The ODR was also asked to coordinate the Canadian contribution to the study, with financial support from the Department of the Secretary of State. We gratefully acknowledge their assistance.

In preparing the Canadian review of the use of technology in education, the ODR contacted a number of educators, academics, government officials, administrators in educational communications organizations, and others, across the country. It became apparent that there was a strong need for a well-documented account of the uses of both the "older" technologies (e.g., film, audio, television) and the newer technologies (e.g., computers, videodiscs, videotex) in the complex Canadian educational system.

Early in 1983, several types of research activities began simultaneously: designing instruments to gather information from each type of institution or interest group, identifying uses and users of each type of technology, and exploring the areas where Canada's distinctive features predispose toward technological developments. The 17 papers listed on the back of the title page emerged as a result.

Information for these papers was provided by hundreds of individuals expressing their own views or reporting on behalf of educational institutions and organizations, government departments, public and private corporations. We extend to them our sincere thanks.

I would like to acknowledge the contribution made by Thelma Rosen who assisted in the development of the inquiry instruments and played a major role in the gathering of this information. The task of supervising the final editing, production, and distribution of the papers was assigned to Donna Sharon. Her resourcefulness and persistence have contributed greatly to the completion of this series. Sharon Parker typed most of the papers from the initial drafts to their final versions. Her dedication made it possible to complete the study in such a relatively short period.

While the preparation of these papers has been supported by the Canadian Commission for UNESCO and the Department of the Secretary of State, the papers' contents do not necessarily reflect the official views of either party on issues related to technology in education.

Ignacy Waniewicz
Study Coordinator
Director
Office of Development Research
TVOntario

January 1984

CONTENTS

Foreword. . . . . (i)

Preface . . . . . (ii)

Introduction. 1

Satellite plus telephone. 2

Teleconferencing. 3

Computer-managed learning and television-based education. 4

The components of a TVOntario Academy 4

The television programs. 4
The print materials. 5
The computer-managed learning system 6

Evaluation of the TVOntario Academies 8

Computer-based instruction and adult basic education. . . 11

Conclusion. 14

Map of Canada 15

INTRODUCTION

Growing numbers of Canadians continue learning actively throughout their adult lives. Much of this adult education occurs in formal courses leading to degrees, diplomas, or professional certification. The use of information and communications technologies in university and college credit courses is described in Papers 3, 4 and 5.

This paper discusses the use of the new technologies in noncredit courses for adults who are interested in learning about a particular subject or in developing skills without concern for formal accreditation. A wide range of such courses are available including some that provide professional upgrading for people in specific jobs, some that may be loosely related to work, and some that provide purely personal satisfaction. Universities and colleges are only one source of noncredit programs; courses for adults are also given by many employers, community agencies, and cultural institutions.

At present, the uses of new technologies in adult education are developed primarily for credit courses given by universities and colleges and are then extended to noncredit courses for continuing education. These uses of satellite/telephone technology and teleconferencing in noncredit programs are outlined below.

The major part of this paper provides detailed descriptions of two instances outside the university system where educational programs especially for adults have been designed using new technologies: TVOntario Academies and the use of computer-managed learning, and adult basic education programs that use computer-assisted instruction.

SATELLITE PLUS TELEPHONE

Distance education for adults (described in detail in Paper 5) began with the exchange of reading material and written assignments by mail. The additions of audiocassettes, broadcast television, and videotape have enriched the materials provided to students studying at home for credit courses; they have also broadened/enriched/ expanded professional development courses, and general interest courses.

The satellite transmission of television signals (see Paper 12) has extended the delivery of adult education to many remote areas. The Knowledge Network of the West (see Paper 7) provides satellite delivery of television materials for credit and noncredit courses in the colleges and universities of British Columbia. Additional course materials - print and audiocassettes - are distributed to the students registered in each course. The broadcasts for these courses are watched by sizable numbers of nonregistrants as well as by the registrants.

In British Columbia, adults can take a course at home by watching a live broadcast relayed by satellite and distributed via cable; they can also telephone the instructor "on air" to ask or answer questions. The subjects covered in noncredit courses during the Fall of 1983 included: exploring television with children (14 weekly half-hours of television), special problems in providing foster care for the sexually abused child (five hours of programming), cinema appreciation (three hours), practical approaches to teaching adults (one hour), violence against women (one hour), and trauma management (one-half hour).

The Department of Distance University Education via Television (DUET) at Mount Saint Vincent University in Nova Scotia offers live interactive noncredit courses in heritage (museum) studies and in theology, using satellite (via Anik C and the Atlantic Satellite Network) and a variety of telephone/teleconferencing linkages.

TELECONFERENCING

Teleconferencing (see Paper 14) uses a telephone bridge to enable adults living in a number of different locations to take a course. At Mount Saint Vincent University in Nova Scotia, teleconferencing makes discussion and conversation possible among four groups of participants. In this "audio-plus" form of teleconferencing, students in each centre watch their instructors' presentations and answers to questions on a cable television channel. Additional visuals (slides, charts) are shown in each centre as needed. At Mount Saint Vincent, short noncredit courses of this type are being offered for business managers and employees interested in business writing, law, management, and handling the media, and for students interested in theology and heritage studies.

Teleconferencing is also being used in noncredit programs at the Universities of Calgary in Alberta and Regina in Saskatchewan. A teleconferencing course on Romantic History of the West attracted over 230 participants.

In several provinces, universities that now use teleconferencing in credit courses are considering introducing it in noncredit programs as well.

COMPUTER-MANAGED LEARNING AND TELEVISION-BASED EDUCATION

In looking for additional ways to provide educational opportunities for adults, TVOntario's research revealed a growing demand among adults for courses in subjects and in teaching situations that are not usually available through formal educational institutions. There are a number of reasons why a considerable proportion of people who have the desire to learn do not participate in any organized learning activity. They include distance from educational institutions, inability to leave home, lack of time, dislike or fear of formal schools and exams, and fear of failure.

The availability of computer-managed learning systems provided a means for TVOntario to reinforce its broadcasting activities by offering systematic studies in specific subjects for adults wanting to learn at home, without employing a regular staff of teachers, tutors, or instructors. Computer-managed learning enables TVOntario to maintain continuous contact with learners throughout a television-based learning project in order to counsel, encourage, motivate, inform, and correct the students.

The first learning project of this type, called the TVOntario Academy, was introduced in 1980. The initial Health and Environment Academy was followed by the Music of Man Academy, several Parents' Academies, and most recently the Academy on Computers in Education in English, and L'Academie: les micro-ordinateurs et nous in French.

The components of a TVOntario Academy

A TVOntario Academy usually consists of (1) a series of high-quality television programs (2) specially designed print materials and, (3) the computer-managed learning system. These elements, in combination, allow adults to participate in a self-directed learning project geared to their needs. The subject specialists, producers, and educational designers determine the principal objectives and concepts of the Academy course.

The television programs. The television programs serve as the initial stimulus for learning. They motivate, stimulate,

and pace the learner. The Health and the Environment Academy programs were produced by TVOntario in cooperation with the Ontario Inter-university Educational Council on Health and the Environment. The 14 half-hour documentaries examine health issues ranging from processed food to the survival of species. The issues, which are discussed from an environmental and interdisciplinary perspective, are chosen to show the increasing demands that modern technology has placed on the human body and the role lay people play in health matters.

The Music of Man Academy is based on eight one-hour programs produced by the Canadian Broadcasting Corporation (CBC) in association with TVOntario and written and narrated by Yehudi Menuhin. The programs provide a unique panorama of the world of sound and present the musical traditions of five continents with performances by many of the world's distinguished artists.

The 12 thirty-minute programs in the first edition of the Parents' Academy were selected from several series produced by TVOntario in the last few years. These programs deal with the physical and emotional development of normal and atypical children, and with topics of crucial interest to every parent or would-be parent: socialization, the development of language and communication skills, discipline, play, cognitive development, learning disabilities, values, child abuse, and so on.

The Academy on Computers in Education contains 12 half-hour programs produced by TVOntario for this Academy. By showing a learner receiving instruction, they convey basic information about computers and use animation to explain the theoretical elements that would otherwise not be clearly understood. The programs provide a conceptual model of microcomputers and their functions, explaining how equipment works and exploring their applications in education and related areas.

The print materials. One or more study guides describe the educational goal of each Academy and the educational objectives of the units of learning, each of which is built around one of the television programs. The guide also contains the broadcast schedule, details of Academy procedural matters, and lists of activities and events in the

province relating to further study of the subject matter of the Academy. Suggestions are offered for various means of expanding one's learning.

Essays written especially by specialists elaborate on ideas, theories, and approaches presented in the television programs. Bibliographic information and recommendations for additional reading are included.

During an Academy run, at least three newsletters are sent to the participants. The newsletters are a way of exchanging experiences and observations among Academy participants, resolving unforeseen problems in the Academy's operations, and informing the participants of new developments in the subject of the Academy.

Assignments consisting of multiple-choice questions are developed for each unit of learning. They are designed to help the participants evaluate their progress but also to involve them intellectually, to stimulate their curiosity, and to sustain their interest. The learners are expected to do the assignments and return them by mail at established intervals. The RSVP (Response System with Variable Prescriptions) computer-managed learning system enables the Academy team to send the participants elaborate individualized letters which comment on their answers to the multiple-choice questions. The letters provide for continual personal contact with each participant throughout the Academy and constitute one of the main elements of the Academy's system of computer-managed learning.

The computer-managed learning system. As already mentioned, the computer-managed learning system known as RSVP is used by TVOntario for the Academies. RSVP was developed by the Miami-Dade Community College in Miami, Florida, U.S.A.,* for its "Open College" external learning program, which serves a heterogeneous population with varying proficiencies and ages, and varying cultural and ethnic backgrounds.

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* More information on RSVP can be obtained from Dr. Kamala Anandam, Director, Computer Based Instructional Development and Research, Miami-Dade Community College, 11011 S.W. 104th Street, Miami, Florida 33176, U.S.A.

When learners register for an Academy they fill out a form that asks for their name, address, telephone number, sex, occupation, educational background, interests, learning goals, and other personal characteristics related to the subject matter of the Academy. The RSVP system has the software to maintain that information and to use it to tailor the individualized letters that comment on the learners' answers to the multiple-choice questions. The software can be programmed to offer encouragement to tardy learners or congratulations to eager ones. The system maintains a record of what each learner has accomplished and at what stage he or she is in the learning process at any time during the Academy. This is based on whether or not the learner has sent in answers to the multiple-choice questions, on how many sets have been answered, and on the answers themselves.

The individualized letters to learners are written in such a way as to help them clarify the implications of their answers to the multiple-choice questions, to stimulate further thought, and to guide them to other learning activities where appropriate. The learners' stated learning goals and their personal characteristics given on their registration forms are taken into account. The letters also serve the important function of giving the learner a sense of being supported and connected with other learners and with the Academy in his or her distance-learning efforts.

The RSVP computer program used at present by TVOntario can accommodate up to 15,000 students in any single project. It is written in FORTRAN with some Assembly routines and operates in the batch processing mode on an IBM 370/155 OS/MVT computer. The Miami-Dade Community College, TVOntario, and several other organizations are taking part in a cooperative venture for the development of a microcomputer-based instructional system that will allow the use of reasonably priced microcomputers for similar and more complex modes of computer-managed learning. The new system called CAMELOT consists of three subsystems:

- An interactive sub-system that will eliminate the need for experience in batch-processing and allow users who have no knowledge of computers to set up their course or program in the microcomputer system, manage it in real time, and monitor the students' progress.

- An interactive sub-system by which the faculty can deliver the individualized instruction to the students in the print mode.

- An interactive sub-system designed to assist faculty in designing a course or program for computer-based instruction.

Evaluation of the TVOntario Academies

The appeal of the Academies as organized learning opportunities can be seen by the steadily growing number of paying participants and also by the substantial increases in nonpaying viewers tuning in to the television programming of the Academies.

The Health and the Environment Academy and the Music of Man Academy were introduced by TVOntario as experimental ventures. The Academy concept was new. There was a relatively short preparation period, and very little effort was made to advertise the Academies to the general public. Nevertheless, over 700 people from across Ontario enrolled in the Academies as paying participants.

For the Health and the Environment Academy, the main evaluation instrument was a fifty-one-item questionnaire that was mailed to all participants at the conclusion of the Academy. Seventy-eight per cent of the respondents agreed that the Academy had presented new concepts about health and the environment, and 77 per cent said it had increased their awareness of health issues. Ninety per cent of the respondents enjoyed receiving the computer-generated response letters. Three-quarters of the respondents expressed their intention of joining future Academies. The Music of Man Academy evaluation questionnaire resulted in similar findings, i.e., that the participants' educational objectives were met to a large degree.

Over 80 per cent of respondents reported viewing at least half of the programs, and two-thirds reported answering at least half of the questionnaires. The most common motive for enrolling in the Academy was to learn something and to do it in an enjoyable way. The most common reason for choosing a televison-based learning program was convenience. The nature

of television-based learning gave the audience a great deal of independence and freedom.

The Parents' Academy, which had a somewhat longer "lead time" for development and which was advertised more heavily, attracted 2,000 paying participants from across the province. Because of the subject matter of this Academy, the newsletter was used to a greater extent than in the earlier Academies for contact among participants and to reply to questions most often raised by the participants. For a sizable majority of the participants, the Academy succeeded both in encouraging people to think about their behavior as parents and in offering new knowledge. In addition, 60 per cent of Academy participants who were child-care professionals or workers said that they learned some principles they had not known previously. Thirty-five per cent of parents said they would be acting differently with their children as a result of having experienced the Academy.

The most recent Academy, The Academy on Computers in Education, was designed for the many teachers, parents, and others who have recently become interested in learning about the operation and function of computers which are appearing in their schools, offices, and neighborhoods. The Academy includes a twelve-program television series called "Bits and Bytes," four texts, and continual direction from course developers through correspondence and newsletters, as well as suggested reading lists and information.

In order to provide practical experience for novices, a special manual was developed. It included sample software designed specifically for the three microcomputers most popular in Ontario schools: PET, APPLE II Plus, or TRS-80 Model III. The manual teaches how to operate a microcomputer; how to load and run programs from disk or cassette; how to save, copy, and edit some features of software in the public domain; how to evaluate educational programs for use in the classroom; and how to use the computer as a calculator.

On its first two runs, the Academy attracted 13,000 participants. Telephone interviews conducted with participants selected at random showed that a large majority found the Academy instructive and worthwhile. Several thousand additional registrants are expected to enroll in the coming year.

Seven Canadian provinces and the Public Broadcasting System in the United States have purchased the Academy materials. The French language version of the Academy is now being offered by Radio-Québec.

While TVOntario is pleased with the success of the Academy format, some problems have been noted. Because of budgetary and staffing restraints, the Academies have not yet been able to take full advantage of the instructional capabilities of the computer-managed learning system. To make the system work to its maximum level requires a substantial investment of time and expertise in the course-planning stage. The overall objectives of the course must be set out precisely, procedures for judging whether the objectives have been met must be devised, learning activities must be skillfully prescribed, and the entire learning process must be monitored constantly.

There are also certain limitations to the RSVP system. RSVP does not understand natural language. Hence, the learners' answers that are to be input into RSVP need to adhere to a multiple-choice format. RSVP evaluates the answers according to the key supplied and prints the reply letters on the basis of those answers. The questions and the prescriptions, therefore, need to be written with extreme care in order to avoid misinformation, ambiguity, confusion, and over-generalization. The fact that RSVP can deal with no more than five options in a single multiple-choice item can make this writing more difficult. Time, training, and experience are required of those people who write the multiple-choice questions and the prescriptions. Another serious limitation of the RSVP system is the cost of technically producing and printing the response letters and in maintaining the necessary personnel to do this.

Despite these difficulties, TVOntario believes that the advantages and potential of the Academy format and of computer-managed learning warrant continuing its development.

COMPUTER-BASED INSTRUCTION AND ADULT BASIC EDUCATION

During the past two years, computer-based instruction has been used on an experimental basis to provide rapid upgrading for adults whose reading and arithmetic are at the elementary school level. This program uses the PLATO system (Programmed Logic for Automatic Teaching Operations) which was developed in the early 1970s by Control Data in the United States and which has recently been adapted (and translated into French) for use in Canada. It provides extensive sequences of computer-based lessons, exercises, and tests. Branching procedures allow learners to direct their own activities, control the amount of practice at each level, and proceed at their own pace. When a student is unable to pass the test in a particular lesson, the system locks until a teacher intervenes.

In Toronto, an Adult Basic Education Centre has been created to operate the program. The learners entering the program are aiming to upgrade their skills in order to enter a high school program, to qualify for a skill-training program, or to prepare for a community college course, a university preparation program, or a job. Among the students are housewives who have been working at home, and people who are unemployed for a variety of reasons. Many have learning disabilities or have poor learning habits. Most speak English as their first language; some are immigrants from English-speaking countries, especially the West Indies.

Three partners are involved in the project: Control Data Canada Ltd., the Toronto Board of Education, and George Brown Community College. The Centre is housed by the Toronto Board of Education at the City Adult Learning Centre. Three teachers on the staff of the Toronto Board assist the students. A counsellor is made available by George Brown Community College to help students set their own goals and work towards them, and to follow the students' progress after they leave the program. George Brown College also contributes administrative staff. Control Data Canada Limited provides the PLATO program, including workbooks, eight terminals, and a printer linked to its large computer in Mississauga, and computer time. Control Data contributed the PLATO resources initially; subsequently George Brown and the Toronto Board assumed full responsibility for funding the Centre.

Morning and afternoon classes of 25 students each work their way through the PLATO materials to improve their reading and mathematics and to gain experience in self-directed learning. Students are encouraged and expected to learn on their own. The teachers help students to identify difficulties with the subject matter, the learning process, or their study habits. Teachers also direct the students to additional exercises that will help them overcome their difficulties. Students spend roughly one-third of their time working on the computer terminal and the remaining time working in related exercise books or on activities recommended by the teacher.

After the three-year experimental period ends, formal evaluation of the program and recommendations concerning the use of computer-based instruction for adult basic education will be forthcoming. Teachers now working at the Centre are impressed with the students' accomplishments and with the value of the computer in providing a positive educational experience to students who are fearful and anxious as a result of earlier failures in schools. Teachers report that many students show a marked improvement in self-esteem and confidence that will undoubtedly increase their chances of success in future educational and occupational undertakings.

In a traditional classroom, a teacher, starting at a specified date, teaches a group of students who are all at or near the same level. In the PLATO system, a grade 5 reading level is needed to follow the instructions on the screen, but students may vary greatly in their beginning abilities, and they can start at different times.

Most students spend three to five months working on the PLATO materials in order to improve their reading and mathematics. Many are able to improve from a grade 5 to grade 8 level in reading during this time, and they then move on to further education, training, or work.

The learners who progress most easily with the self-directed learning materials often remain in the program for a longer time and continue on to high school correspondence courses. Some students, however, are unable to learn in this setting, whether because of personal limitations or because they need a different learning environment.

A second program in adult basic education, the Kirkness Adult Learning Centre, was recently started in Winnipeg. The Indian Business Development Group, with funding from the National Training Act Skills Growth Fund, has contracted with Control Data to provide the PLATO system for basic adult literacy. Learners are referred to the program and sponsored by the federal Employment and Immigration Commission.

Morning and afternoon sessions each enroll 30 participants at a time. Many of the learners in this program are native Canadians who have moved to Winnipeg from reservations. The participants spend half their time developing life skills and half their time improving their reading and arithmetic. Audiotapes, videotapes, and print materials are used in addition to the PLATO system of computer-based instruction. Since the program has only recently begun, no information is available on its effectiveness. Early findings report a low dropout rate, suggesting the acceptance of computer-assisted instruction among the learner population.

CONCLUSION

Over the years, television, film, and audiotapes have been used in a growing variety of adult education programs. Now we are witnessing the use of satellite broadcasts, teleconferencing, computer-based instruction, and computer-managed learning to expand the educational opportunities available to adults.

In some areas, communications technologies are being used in education by libraries, community centres, interest groups and neighborhood groups as well as colleges, universities and educational institutions. Teleconferencing among community groups in B.C. and teaching Telidon page creation at the public library in Victoria, B.C. indicate some of the newest extensions of technologies in adult education.

The availability of education can be increased in several ways: by reaching remote communities, by making two-way communication possible over a distance, by reducing costs, and by facilitating the development of new forms and formats of learning situations. Additional technologies such as videodiscs and videotex (Telidon) will continue to create new forms of information flow and teacher-learner interaction. Ideally, these technologies will make learning more individualized by providing resources matched to specific needs. It is hoped that by overcoming the limitations of time and distance, the use of the new technologies will make educational opportunities available to Canadians in all parts of the country.

MAP OF CANADA, showing physical dimensions, provincial and territorial divisions and major cities.

22

23

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